oxygen, in the range of 61.5 to 72.3 per cent. With both makes of machine, each ventilator provides different inspired oxygen levels under comparable circumstances. This type of equipment should be driven by compressed air, oxygen being added as required. (*Fairley, H. B., and Britt, B. A.: Adequacy of the Air-Mix Control in Ventilators Operated from an Oxygen Source, Canad. Med. Ass. J. 90: 1394 (June 20) 1964.*)

OBSTETRIC ANALGESIA The Central Midwives Board are considering approving the use of premixed nitrous oxide and oxygen in equal parts, stored in tanks under pressure, by midwives on their own responsibility in domiciliary deliveries rather than the presently used gas and air. The mixture will not deliver hypoxic mixtures unless cooled to minus eight degrees centigrade when the cylinder is to be warmed or inverted three times. (*Gale, C. W., Tunstall, M. E., and Wilton-Davies, G. C.: Premixed Gas and Oxygen for Midwives, Brit. Med. J. 1: 732 (Mar. 21) 1964.*)

POSTOPERATIVE HYPOXEMIA Of 32 subjects undergoing partial gastrectomy, 18 developed atelectasis. Of these, 14 were cigarette smokers and 12 had chronic bronchitis. Seven bronchitics developed bronchopneumonia. All subjects had shallow, more rapid respiration postoperatively and decreased, though improving, ventilation and hypoxemia for five days. Those subjects with atelectasis were more hypoxemic probably due to impaired ventilation-perfusion relationships. In the nonatelectatic cases, the hypoxemia was relieved by 30 per cent oxygen, but only partially relieved in the atelectatic cases. (*Palmer, K. N. V., and Gardiner, A. J. S.: Effect of Partial Gastrectomy on Pulmonary Physiology, Brit. Med. J. 1: 347 (Feb. 8) 1964.*)

CHEST INJURY Following chest injury arterial oxygen desaturation may be present even though the arterial carbon dioxide tension is normal. In the absence of mechanical causes, hypoxemia may be caused by alveolar hypoventilation, disturbance in ventilation-perfusion relationships and right to left shunts. If oxygen administration does not always fully correct the hypoxemia, a considerable amount of shunting is probably present. (*Whitwam, J. G., and Norman, J.: Hypoxaemia after Crush Injury of the Chest, Brit. Med. J. 1: 349 (Feb. 8) 1964.*)

HYPOTHERMIA During accidental hypothermia, arterial oxygen tensions were low and the alveolar-arterial oxygen tension gradient increased. Due to the shift in the oxygen-hemoglobin dissociation curve with fall in temperature, arterial desaturation was not so marked. Oxygen breathing does not always raise these tensions appreciably, some subjects requiring mechanical assistance to ventilation. Probably severe hypoxia at the cellular level occurs. (*McNicol, M. W., and Smith, R.: Accidental Hypothermia, Brit. Med. J. 1: 19 (Jan. 4) 1964.*)

INCISIONAL HERNIA Studies of respiratory changes were carried out during repair of large epigastric hernias. Conventional closure was shown to interfere with respiration by reducing the intra-abdominal space for the viscera. Respiratory movements, static lung volume, and functional ventilatory capacity were reduced, thus predisposing the patients to pulmonary complications. A technique is described for closing the hernia with flaps of fascia from the rectus sheath. The wound repair is more satisfactory, since there is less tension on the tissues. The new technique, which reduces intra-abdominal space only moderately, does not cause any impairment of respiratory function. (*Arner, O., Eriksson, F., and Sundblad, R.: Episgastric Incisional Hernia, Acta Chir. Scand., Suppl. 320, 1963.*)

CARDIAC AUGMENTATION A pump-driven circulation assistor is proposed for the treatment of hemorrhagic shock. It would lower the work of the left ventricle, improve coronary perfusion, increase systemic blood pressure and flow, reduce blood viscosity, and improve tissue perfusion and oxygenation. A pump and timing device were built so that the pump stroke augments the cardiac output. When used in dogs, metabolic and physiologic functions were improved. Mortality from a standard hemorrhage declined from 70 per cent to 32 per cent. (*Callaghan, P. B., Wat-*

kins, D. H., and Klink, E. J.: Orthophasic Post-systolic Myocardial Augmentation, Arch. Surg. 89: 354 (Aug.) 1964.)

HALOTHANE A widespread intense emotional reaction developed following the early reports of liver necrosis following halothane anesthesia. This reaction was similar to that which occurred following the Beecher-Todd report on the adverse effects of muscle relaxants. The "clinical impression" type of reports provoked scientific men and women in the field of anesthesia to undertake a full-scale investigation into the problem. Already the apprehension and emotional reaction is subsiding and some anesthesiologists are returning to their comfortable "ruts" with halothane. This subsidence of concern is just as unfortunate as the emotional convulsion that attended introduction of the problem. *(Cullen, S. C.: Editorial—Halothane, Clin. Pharmacol. Ther. 5: 395 (July-Aug.) 1964.)*

DRUG TERATOGENICITY The placenta behaves toward most drugs as an inert barrier with lipoid properties. Accordingly, any lipid-soluble drug (or one that crosses the blood-brain barrier) will readily penetrate the placental barrier. Morphine, meperidine, hyoscine, chloral hydrate, barbiturates and anticoagulants readily cross the placental membranes but do not seem to cause fetal deformities. Some doubt exists about the effects of meclizine and phenmetrazine. The detection of the teratogenic effect of drugs still remains a challenge. *(Cahen, R. L.: Evaluation of the Teratogenicity of Drugs, Clin. Pharmacol. Ther. 5: 480 (July-Aug.) 1964.)*

CATECHOLAMINES A definite correlation exists between the urinary excretion of catecholamines and the various types of stress. Generally, in forms of mental stress associated with anger, apprehension or exhilaration, norepinephrine excretion is increased. In emotional states characterized by apprehension, discomfort or painful or unpleasant feelings epinephrine excretion is increased. *(von Euler, U. S.: Quantitation of Stress by Catecholamine Analysis, Clin. Pharmacol. Ther. 5: 398 (July-Aug.) 1964.)*

COST OF BREATHING Oxygen cost of breathing increases exponentially with ventilatory efforts. At minute volumes of about 150 liters breathing becomes an end in itself, the whole oxygen uptake being required to satisfy the energy requirements of the respiratory effort. The quantity of oxygen available for work reaches an optimum value at ventilation of between 100–120 liters/minute. Breathing against resistance increases oxygen cost, more so during inspiratory than during expiratory obstruction. With maximal physical effort and in patients with severe restriction to respiration, the energy cost of breathing becomes part of the respiratory regulation in terms of hypoventilation and increasing tolerance to respiratory acidosis. *(Millhahn, H. P., and Eckermann, P.: Energy Consumption of Respiration, Klin. Wschr. 42: 722 (Aug. 1) 1964.)*

CARDIAC CATECHOLAMINES In a cat heart preparation superfusing an isolated segment of rabbit intestine, mephentermine releases a substance into the cardiac perfusate which produces relaxation of the intestine. The intestine-relaxing substance was not released by mephentermine from a heart taken from an animal pretreated with reserpine, but the relaxing substance was released after an infusion of levarterenol through the heart. The relaxing substance was released by mephentermine after pretreatment of the heart with dichloroisoproterenol, but the effects on the heart itself were blocked. The necessity of intact stores of catecholamines is indicated for cardiac action of mephentermine. *(Swaine, C. R., Perlmutter, J. F, and Ellis, S.: Release of Catecholamines from the Isolated Cat Heart by Mephentermine, Naunyn-Schmiedeberg Arch. Exp. Path. 248: 331 (June 22) 1964.)*

CARDIAC METABOLISM During asystole the following metabolic changes occur: glycogen and glucose decrease, alpha-glycerophosphate and lactic acid increase. Phosphocreatin and adenosine triphosphate (ATP) decrease with an associated decrease of the ATP/ADP coefficient. Injections of adenosine and inorganic phosphate, together with epinephrin, norepinephrin and glucose with insulin increased the synthesis of phosphocreatin.